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CRT IMAGE SCREEN TIMING DEVICE FOR PRE-PROGRAMMED RECEPTION  
DATA OF VIDEO RECORDERS AND PLAYBACK APPARATUS

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Description: CRT image screen timing device for pre-programmed reception data of video recorders and playback apparatus

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CRT IMAGE SCREEN TIMING DEVICE FOR PRE-PROGRAMMED  
RECEPTION DATA OF VIDEO RECORDERS AND PLAYBACK APPARATUS

Claims

1. CRT image screen timing device for pre-programmed reception data of video recorders and playback apparatus, with keyboard coupled to a programmable timer with display unit and a signal generator for screen data, which is also coupled to the timer, characterized by the fact that
  - the video recorder and playback apparatus are equipped with the signal generator (5),  
- - -
  - the signal generator (5) is coupled to a change-over device (6) which receives the output signal of the signal generator (5) or video signal of the recorder and playback device or sender.

2. Device according to claim 1, characterized by the fact that a CRT controller is provided for the signal generator (5).
3. Device according to claim 1 and 2, characterized by the fact that a video filter is provided for the change-over device.
4. Device according to one of the foregoing claims 1 to 3, characterized by the fact that the signal generator (5) may process data beyond the available capacity of the recording medium in the video recorder and playback apparatus as well as for displaying the capacity on screen.
5. Device according to one of the foregoing claims 1 to 4, characterized by the fact that the signal generator (5) may produce a movable label (12; 13) on the screen for precise marking of the instantaneously changeable switching time or program data.

6. Device according to the foregoing claims 1 to 5, characterized by the fact that the signals (8) for continuous and optional determination of locations of the recording medium and its count for display of the count values are fed from the detector (8) to the signal generator (5) and the programmable timer (3).
7. Device according to one of the foregoing claims 1 to 6, characterized by the fact that the signal generator (5) produces real time display on the screen.
8. Device according to one of the foregoing claims 1 to 7, characterized by the fact that the output signal of the signal generator (5) shows an identification in order to identify and automatically search for the beginning of individual records on the recording medium.

Description

According to characterizing clause of claim 1, the invention pertains to a CRT image screen timing device for preprogrammed reception data video recorders and playback devices, in particular video recorders.

As already known, the screen of a TV unit may be used to display real time and, if necessary, the scheduled turn-on-time for the TV unit. For this purpose, an intermediate generator with random access free storage (RAM) may be used in the circuit of the TV unit.

As already known, a signal generator for displaying data on the screen, a so-called CRT-controller, may be used in connection with TV units, have data displayed on the TV screen. The CRT controller basically consists of a character generator, a DOT-oscillator, divisor circuits and decoders which produce the impulses required for the video signal according to TV standards.

Based on the technical standards described above, the main objective of the invention is to create a device which displays a listing of all reception data; this occurs even with a large number of programming stations and long VCR recording times for the purpose of easy accessibility. No additional component parts are necessary at the control panel of the video recorder and playback apparatus.

This task is accomplished by the invention through the features mentioned in the characterizing part of claim 1.

Additional improvements of the invention are described in the sub-claims.

- The invention produces a simple, easily accessible and understandable listing on the TV screen of information on the desired circuit functions of the video recorder.

Additional advantages and details of the invention are illustrated by means of a detailed drawing and are described in the following:

Fig. 1 shows a block diagram of the invention,

Fig. 2 displays a simple, desired video recorder switch function on the TV screen by using the invention according to fig. 1,

Fig. 3 displays an additional example for displaying desired video recorder switch functions on the TV screen. These may be produced with the invention according to figure 1.

The block diagram shown in figure 1 of the invention which describes a video recorder with tape-like recording medium, shows that keyboard 1 is coupled with a programmable timer computer 3. This timer has an output to a display unit 2 and to a buffer memory 4 with random access ("buffer-RAM"). A signal generator for data displayed on screen (5) (CRT controller) is coupled to memory 4. This memory 4 stores variable data which are to be displayed at the respective character positions. In order to feed a video signal "program list" (the output signal of a signal generator 5), signal generator 5 is coupled to a change-over device 6 (video separating filter). Another video signal ("recorder"/"sender") is fed from a different port of the video separating filter. The output of video separating filter 6 is coupled with the input of modulator 7 from which the RF signal is sent to the TV unit.

For continuous and optional determination of recording medium positions and their numbering, an output from detector 8 is coupled to an additional input of the programmable timer computer 3. The output of detector 8 is also coupled with memory 4. Signals from the recorder, i.e. a VCR with magnetic tape cassette, arrive via tape length coding switches, not explained in more detail, at inputs 12 of detector 8. Signals are also fed to detector 8 from two tachometer generators.

In the example of Figure 1, the magnetic tape of the video recorder provided, is labeled with 11.

In the patent application, the recorder is equipped with CRT controller 5, in order to produce a listing of all reception data on the TV screen.

The function of the device will be explained in more detail in fig. 2 and 3. These figures illustrate an example of different switching functions selected by the user and displayed on the screen. Fig. 2 represents an example of listed data or the beginning of such a listing; whereas fig. 3 shows a more comprehensive listing of switching time or program data. Fig. 2 may also be used as an example for "credit titles" before an automatically controlled recording.

When data is displayed on the TV screen, video information rather than signals from the VCR or another type sending transmitter, is sent from the CRT controller 5 to the screen via high frequency modulator 7 or a video cable.

In order to display a switching function of the VCR, a program number (channel), turnoff time and date is selected (see figure 2).

If required, it is also possible to select a specific programming time (day of entry of the desired, subsequent switching function of the VCR) and the desired subsequent data of the switching functions in terms of "today", "tomorrow", "the day after tomorrow" or similar information.

With this device, when listing such information on the TV screen, easy accessibility is considerably increased with many programming procedures (see figure 3).

However, the ease of programming and resulting display is further increased by automatic sort procedures of all programming steps after their execution and by means of a sorted display.

By labeling input data by means of a moveable label (flag or marker) on the TV screen, the user is clearly shown which information will be changed by striking the keys of keyboard 1. Fig. 3 shows this change by means of label 12. This change is shown with solid lines in order to identify the "release of position". Label 13 is displayed with broken lines and shows the precise position of data already listed so that a correction can be made in a simple and clear manner, if necessary.

As mentioned above, the program time can be fed to the controller of the VCR, i.e. the magnetic tape cassette of a video recorder,

since the CRT-controller 5 is located in the video recorder. This is automatically accomplished via mechanic contacts scanning the magnetic tape cassette.

Once the switch functions necessary for a recording have been input (channel, turnon- and turnoff time, date), timer computer 3 calculates the remainder of the recording tape (in this example, the remaining tape) and also displays this remainder via the computer. If the user of the VCR inadvertently uses a tape with a shorter length than the actual recording time, the word "remaining" blinks on and off and the overrun recording time is displayed with a minus sign.

In addition, apart from the information important for preprogramming, it is also possible to display the real time and, if necessary, the counter status for a tape-like recording medium. If the computer receives information on the counter status that the magnetic tape of the inserted cassette has not been fully rewound to the beginning, and thus the program time actually available has become shorter, this information can be used when calculating the "remainder".

Besides the different options described above, programming data displayed on a TV screen may also facilitate archiving of video recordings. If, for example, before starting every automatic recording

the most current location of the screen list is also included for approx. 10 seconds, later on, information on the video recording may be obtained by means of this "title".

If provisions are taken that the CRT video signal (output signal of signal generator 5) is provided with a specific standard deviation (identification), the starting points of the individual video recordings can be searched automatically by identifying this deviation.

In addition to the function described above, the device also enables the video recorder and playback apparatus to receive and process a video signal from a sender, preferably a test picture. This signal is received and processed as a synchronous program, in order to key in the respective information of a character generator. This, however, requires more sophisticated switching operations.

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## FIG.2

PROGRAM	ON	OFF	DAY
6	18:25	19:50	28.03.

## FIG.3

PROGRAM	ON	OFF	DAY
10	19:30	19:48	HEUTE
6	<u>12:00</u>	13:20	25.03.
4	<u>13</u> 12:15	13:08	<u>27.03.</u> <u>12</u>

CASSETTE 4H

REMAINDER 2:29

TIME 18:40

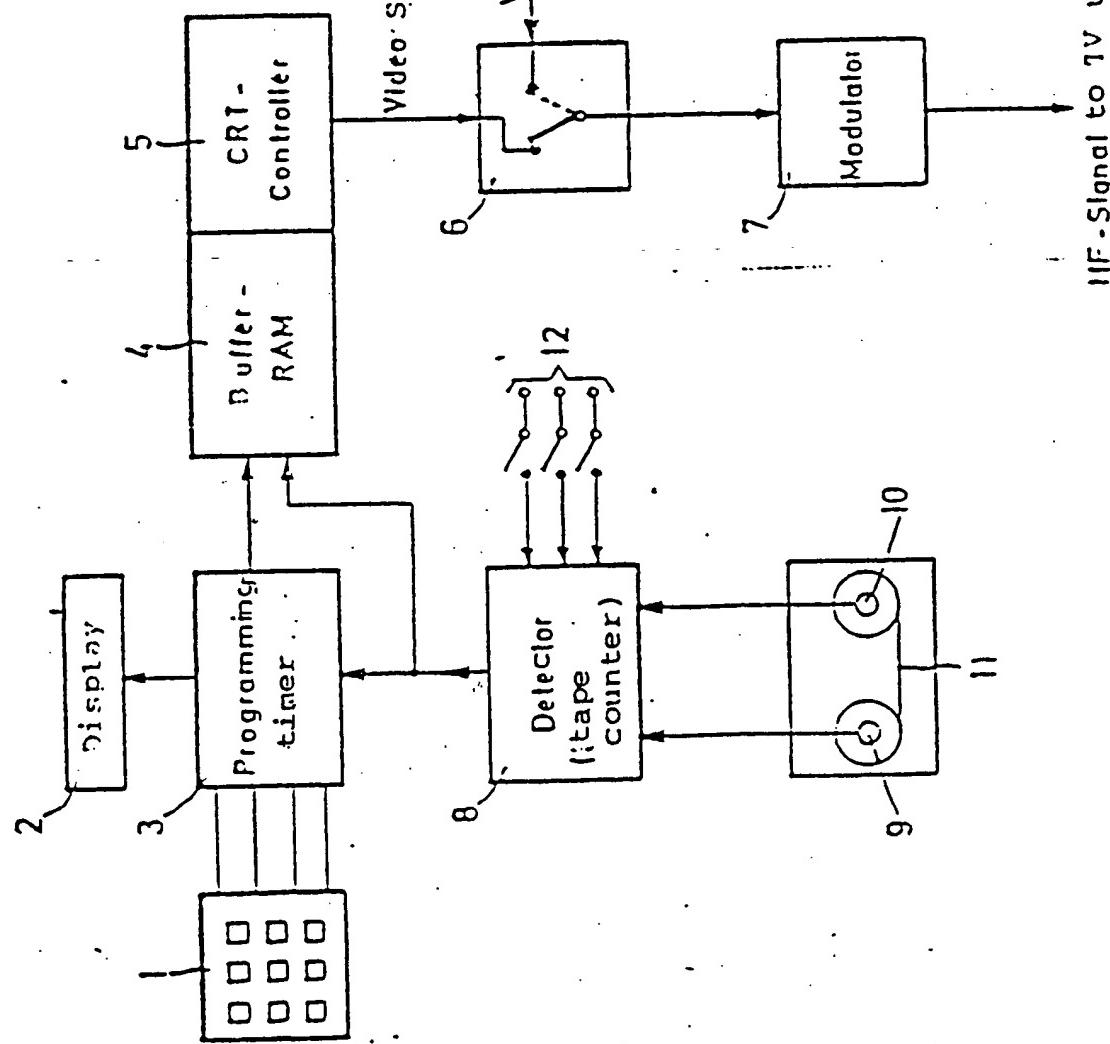
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-13-

FIG. 1



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